

## Section 1-2: Measures of Central Tendency and Range

**By the end of this lesson, you should be able to answer:**

- How do you calculate the mean, median, and mode of a set of data?
- How do you find the range of a set of data?

**Where you might see this in the real world:**

- Statistics, sports, measurement, education

Define the following words:

1. Mean\*
2. Median\*
3. Mode\*
4. \*Measures of central tendency
5. Range

Finding mean, median and mode with a calculator is easy. Follow these easy steps with a TI graphing calculator (TI-83 or TI-84).

The first thing we have to do is enter the data into the calculator. Here is our data, which are test scores from Matt Mitarnowski's first marking period math class:

75 99 83 76 89 97 84 83 85 96 83

We need to get this data into our graphing calculator. To do this, first hit the **STAT** button, then hit either **ENTER** when you have **1:Edit...** highlighted, or just push the number **1**. Make sure you are in the column under **L1** and enter each value, hitting **ENTER** after each entered value.

You now have a list of the data in your calculator to work with. Go back to the main screen by hitting the **2<sup>ND</sup>** button and then **QUIT**. Now we can find the mean, median, and mode.

**MEAN:** Press the **2<sup>ND</sup>** button then **LIST**. Use your arrows to move the cursor at the top over to **MATH** and find **3:mean(** on the list. Either highlight it or just press **3**. You will be back at your home screen. Now we just have to enter our list. Press **2<sup>ND</sup>** then **LIST** and find **L1** on the menu. Press **ENTER**. You will return to the home screen again, and can press **ENTER** again to find your mean. The mean is \_\_\_\_ (Round to the hundredths place).

**MEDIAN:** You will follow the same steps above, but now you will hit **4:median()** to find it. The median is \_\_\_\_\_.

To find the mode, you can either look at the original list of data and try to keep track of which shows up most, or you can order your data in the calculator, which is also helpful with the median.

Press **STAT** and find **2:SortA()**. This will sort your list in ascending order (smallest to largest). You can also do **3:SortD()**, which is descending, or largest to smallest. Once you get **SortA()** on your screen, you need to sort **L1**, so enter that in like before. Your screen will say **Done**. Now you can go back and look at your list by pressing **STAT** and **1>Edit...** The list will be in order, and you can see which shows up most and which is in the middle. Also, you can now find the range easily, as the largest and smallest values will be at the top and bottom of the list.

Example 1: The annual tuition fees at 6 colleges are \$12,560, \$14,300, \$13,750, \$12,400, \$13,680, and \$15,420.

a. Determine the measures of central tendency and the range for the data.

b. Which measure of central tendency is the best indicator of the typical annual tuition fee for these colleges? Why?

Example 2: Find the measures of central tendency for the following scores:

77 58 77 91 68 63 69 86 85 45 77 74

Problem Set:

"If you can find a path with no obstacles, it probably doesn't lead anywhere."

- Frank A. Clark